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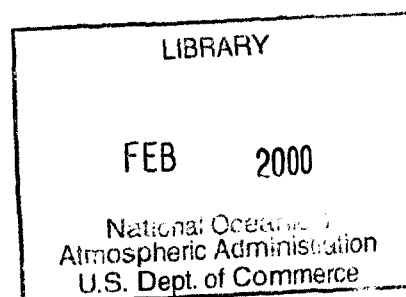
INDIA WEATHER REVIEW

ANNUAL SUMMARY FOR 1929

PART B SNOWFALL

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UNDER THE DIRECTION OF

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ANNUAL SUMMARY, 1929.

PART B.*

SNOWFALL.

The cold weather period, January and February.

I.—PERSIA.

Meshed.—Snow fell on four days in January and six days in February, the total precipitation including rainfall amounting to 9·7" and 11" respectively.

The snowfall of the season was less than the normal.

II.—AFGHANISTAN.

The usual reports were not received.

III.—BALUCHISTAN.

Quetta.—The total precipitation measured 0·79" in January and 3·22" in February. Of these, contributions from snowfall were 0·5" and 0·2" respectively. Snowfall in January was below the average, while it was above the average in February.

IV.—NORTH-WEST FRONTIER PROVINCE.

(a) *Hazara.*—The following table shows the character of snowfall in the two months:—

TABLE.

Locality.	No. of days of snowfall.	Total amount.		Accumulations at the end of the month.	
		JANUARY.			
Inner Hills—		Ft.	In.	Ft.	In.
Narang	15	18	6	9	6
Paludran	15	16	5	8	7
Kagan	15	12	5	7	3
Jared	9	7	5	3	10
Malkandi	8	6	3	3	2
Sundigali	7	7	8	7	8
Jacha	8	9	1	9	1
Outer Hills—					
Thandiani	9	10	7	10	7
Dungagali	8	10	0	10	0
Birangali	7	8	6	10	0

Locality.	No. of days of snowfall.	Total amount.		Accumulations at the end of the month.	
		FEBRUARY.			
		Ft.	In.	Ft.	In.
Inner Hills—					
Narang	13	18	3	2	0
Paludran	14	14	8	1	7
Kagan	13	11	1	1	4
Jared	6	2	1	0	8
Malkandi	5	2	5	0	0
Sundigali	11	8	1	1	4
Jacha	11	5	2	1	0
Outer Hills—					
Thandiani	6	3	8	2	2
Dungagali	6	4	6	2	0
Birangali	6	2	9	1	0

The accumulations at the end of January were above normal and in defect by the end of February.

(b) *Dir, Swat and Chitral.*—At Drosh six falls occurred in January and two in February.

(c) *Khyber Agency.*—On the Tartara hills 9" of total precipitation were recorded in January; the amount in February being *nil*.

(d) *Kohat.*—Snowfall was very heavy, amounting to 11" in January and 7" in February. On the 30th January, even places down to a height of 1,500 ft. experienced falls.

(e) *North Waziristan.*—Miranshah reports slight snowfall during January and hard frosts and large quantities of snowfall in February.

(f) *Dera Ismail Khan.*—Accumulation of snow on the Takht-i-Suleman was normal.

V.—KASHMIR.

(a) *Skardu.*—Snow fell on eight days in each of the months of the season. The actual amounts were 0·74" and 0·75" respectively.

(b) *Dras.*—Frequent falls occurred during January and several heavy falls in February.

* This part is based on the reports received mostly from the local Government Officers, who, in turn, collect the required information from the people.

At the end of both the months, the accumulations were normal.

(c) *Srinagar*.—There were eleven days of snowfall during January, the heaviest being that on the 30th measuring 0.65" of snow water. The total precipitation for the month amounted to 2.60". February experienced ten days of fall, the total precipitation amounting to 1.68". Snowfall was below normal for both the months.

(d) *Kargil*.—Snow fell on 15 days in January amounting to 1.34" of equivalent rain and on five days in February measuring 0.67" of rain. The total snowfall in both the months was above the average. Snow accumulations on the neighbouring peaks at the end of January and February were about 4 ft. and 4½ ft. in depth respectively.

VI.—PUNJAB.

(a) *Rawalpindi*.—From the 23rd January to the 2nd February snowfall was general over the whole district due to a period of stormy weather. On the 2nd February the fall extended even to the remote plains of the district. The total snowfall at Murree during these two months was 6 ft. 11 in. the heaviest fall being one of 2½ ft. on the 30th January. In February 2 ft. of snow fell between the 9th and the 14th. Snowfall for the season was above normal.

(b) *Kulu (Kangra District)*.—The table below gives the depth of the accumulations of snow on the various peaks of the Kulu sub-division :—

TABLE.

Locality.	ACCUMULATIONS AT THE END OF	
	January.	February.
	Ft.	Ft.
Kulu Tahsil—		
Rohtang	9	20
Hamta	10	21
Barsai	9	5
Chandarkhani	10	8
Pujadhar	7	11½
Lohri Achhri	5	9
Sari	8	9
Bhubu	5½	6
Bastori	4	3
Majhang	3	3
Saraj Tahsil—		
Sirikhand	18	22
Chal	15	16
Meghin	5	6
Dundku	8	9
Tikar	6	7
Ramgarh	5	6

Locality.	ACCUMULATIONS AT THE END OF	
	January.	February.
	Ft.	Ft.
Nahnnon	4	6
Raghopur	6	8
Jalabri	4	9
Sakiran	4	7
Gargorasan	4	8
Shupakun	3	6
Bashlio	4	10
Palach	5	8
Lambri	4	6
Tirath	8	10

The accumulations in Kulu Tahsil were below normal at the end of January and normal at the end of February. Saraj had normal accumulations at the end of both the months.

(c) *Simla*.—Snow fell on 13 days in January and on 8 days in February. The falls in both the months were above normal and caused enormous damage to the roads and buildings. The accumulations on the various peaks and passes were as follow :—

TABLE.

Locality.	End of January.	End of February.
	Ft.	Ft.
Kailash	30	32
Rupan	18	19½
Brua	15	17
Shatal	15	17

VII.—UNITED PROVINCES.

(a) *Almora*.—The following table gives the snowfall amounts in the district :—

TABLE.

Locality.	January.	February.
	Ft.	Ft.
Biyaas	36	20
Chaudans	24	20
Malla Darma	25	31
Malla Danpur	4	12½

Approximate accumulations of snow on the well-known passes and peaks were as follow :—

TABLE.

Pass or Peak.	ACCUMULATIONS AT THE END OF	
	January.	February.
	Ft.	Ft.
Lampia	45	..
Lipulekh	30	..
Binkaru	26	20
Nuwe.	35	31
Pindari	6	12½
Kafini	6	12½
Kantila	6	12½
Nandakote	6	..
Puwalidwar	6	12½
Dhakuri . . . . .	..	12½

Accumulations were normal both in January and February.

(b) *Garhwal*.—Snow fell on 9 days in January and 4 days in February. The average fall may be estimated at about 4 ft.

VIII.—ASSAM.

(a) *Kamrup*.—The following table gives the snowfall amounts in the district.

Locality.	Januray.	February.
	Ins.	Ins.
Dewangiri	3	2
Gampa	3	2

Locality.	January.	February.
	Ins.	Ins.
Chirkimila	½	4
Angla	½	½
Chimgkhar	¾	½
Kepegangri.	¾	¾
Pangkhar	1½	6½
Tasigaon	3	2
Tupkang	3	2
Oang Chengla	½	4½
Phongmi	¾	2
Chakteng	½	¾
Mokota	¾	¾
Taoyang	¾	¾
Yangangla	¾	½
Karila	½	½
Cheina	¾	¾
Chengla	½	¾

Snowfall in the district was below normal.

(b) *Sadiya Frontier Tract*.—Snow fell more heavily than usual throughout the district and was observed at lower levels than is ordinary. There were particularly heavy falls of snow during the 3rd week of January and also in February.

(c) *Baliapara Frontier Tract*.—The snowfall during the period under report was normal. There was a heavy fall at the end of January during which time, snow lay for some time on the lower passes, so much so that Se-la, an important pass, was closed for traffic.

The hot weather period, March to May.

I.—PERSIA.

Meshed.—There were three snow falls in March amounting to 3½" of snow water. No information is available for April and May.

II.—AFGHANISTAN.

• The usual reports were not received.

III.—BALUCHISTAN.

Quetta.—No snow fell during the period.

IV.—NORTH-WEST FRONTIER PROVINCE.

(a) *Hazara*.—There was no fall of snow during the period, and the accumulations at the end of May on the peaks were normal.

In the neighbourhood of Abbottabad snow accumulations on the higher peaks were normal and measured between 1½ ft. and 5¾ ft.

(b) *Dir, Swat and Chitral*.—At Drosh there were two falls in March. No fresh falls were observed during the remaining part of the period. Accumulations of snow on the peaks at the end of the season were very much less than normal, and so the Lowarai pass was used for mule traffic from the 12th May, a week earlier than usual.

(c) *Khyber Agency*.—There was no snowfall during the period.

(d) *Kurram*.—There was no snowfall during May and the accumulations at the end of the season were below normal.

(e) *Kohat*.—The station experienced no snowfall. A very early and hot spring in March and April resulted in the rapid melting of the accumulations, which were normal by the middle of May.

(f) *North Waziristan*.—No snowfall was reported during the season. Accumulations on high peaks at the end of the period were normal.

(g) *South Waziristan*.—Snow accumulations on high peaks were normal.

V.—KASHMIR.

(a) *Skardu*.—Fresh snow on the surrounding hills and rain at the station occurred on 6 days in March, 5 days in April, and 6 days in May. The accumulations of snow on the surrounding hills were above normal and about $4\frac{1}{2}$ ft. deep.

(b) *Dras*.—Several snowfalls occurred in March and some slight falls in April and May. Both the actual falls and accumulations at the end of May were below normal, except on the high peaks and passes towards the west and southwest, where snow lay deep.

(c) *Srinagar*.—There were six falls of snow in March, several fresh falls in April and some slight falls on the surrounding mountains, in May. The falls and accumulations upto the end of the period were below normal.

(d) *Gulmarg*.—The accumulations on the neighbouring peaks were below normal.

(e) *Kargil*.—In March there were 3 falls of snow amounting to 1.03" of snow water. During the other two months of the period, precipitation was mainly in the form of rain. The snow-accumulations on the well-known passes and peaks at the end of May were normal and were about $2\frac{1}{2}$ ft. deep.

(f) *Sonamarg*.—Snow accumulations at the end of the period on high peaks and passes were in excess.

(g) *Leh*.—There were many slight falls of snow in May. Accumulations at the end of the period were less than usual.

VI.—PUNJAB.

(a) *Rawalpindi*.—There was no snow fall during the period.

(b) *Chamba*.—No reliable data could be had regarding the accumulations of snow in the well-known passes and peaks, but they were stated by the local people to vary from 10 to 16 ft. The Sach and other passes were open for traffic by the middle of May.

(c) *Kulu (Kangra District)*. In March there was snowfall only above an elevation of 6,000 feet and in April falls occurred only on the high peaks. In May there was no snowfall and the accumulations at the end of the period were as follow :—

TABLE.

Locality.	Accumulations at the end of May.
	Ft.
Rohtang	3
Hamta	5

Locality.	Accumulations at the end of May.
Pujadhar	2
Chandarkhani	2
Sirikhand	6
Chul	1
Tirath	1

The total accumulation at the end of the season was slightly below normal.

(d) *Kilba (Simla District)*.—In March snow fell on 5 days. The total amount converted into equivalent rain was $8\frac{1}{2}$ " and the snowline descended to an elevation of 7,500 feet. In April there were 7 falls of snow, $5\frac{1}{2}$ " of equivalent rain being recorded, and the snowline was at a height of 8,350 feet. 3" of snow fell in March, distributed over six days. Accumulations at the end of each month on the well-known passes are given in the following table :—

TABLE.

Locality.	March.	April.	May.
	Ft.	Ft.	Ft.
Kailash	20	19	$17\frac{1}{2}$
Rupan	12	$11\frac{1}{2}$	$9\frac{1}{2}$
Brua	$10\frac{1}{2}$	9	7
Shatul	10	9	7

Accumulations of snow on these peaks and passes were above normal.

VII.—UNITED PROVINCES.

(a) *Almora*.—Fresh deposits of snow in the several pattis were as follow :—

TABLE.

Locality.	March.	April.	May.
	Ft.	Ft.	Ft.
Biyans	13	$6\frac{1}{2}$	12
Malla Danpur	2	2	$1\frac{1}{2}$
Malla Darma	18	$5\frac{1}{2}$	$7\frac{1}{2}$
Chaudans	13	$6\frac{1}{2}$	3

The approximate amounts of accumulation on the various peaks and passes are given below :—

TABLE.

Name of peak or pass.	ACCUMULATIONS AT THE END OF		
	March.	April.	May.
	Ft.	Ft.	Ft.
Lampia		1	12
Lepulekh . . . . .	..	1	8
Kafini	2	2	1½
Kantila	2	2	1½
Puwalidwar . . . . .	..	2	1½
Nandakote	2	2	1½

Name of peak or pass.	ACCUMULATIONS AT THE END OF		
	March.	April.	May.
	Ft.	Ft.	Ft.
Nuwe	11	5½	7
Binkaru	7½	..	6
Pindari	2	..	..

Accumulations at the end of the period were below normal.

(b) *Garhwal*.—Weather during May was hot ; snow amounting to 2 ft. fell on the higher peaks and accumulations were below normal.

VIII.—ASSAM.

(a) *Sadiya Frontier Tract*.—In March there were heavy falls of snow. The accumulations at the end of April were slightly above normal.

(b) *Balipara Frontier Tract*.—Accumulations of snow were normal up to April but in excess at the end of the period.

The Southwest monsoon period, June to September.

JUNE AND JULY.

I.—PERSIA.

No falls.

II.—AFGHANISTAN.

No falls.

III.—BALUCHISTAN.

No falls.

IV.—NORTH-WEST FRONTIER PROVINCE.

(a) *Hazara*.—In the Kagan Valley, at altitudes of 13,000 to 18,000 feet, snow fell on 8 days in June and 8 days in July, the amount varying from ½" to 2½" for each day. Accumulations of snow at the end of July ranged from 1 to 3½ ft. on the highest mountain ranges.

(b) *Dir, Swat and Chitral*.—During June and July there was no snowfall below an altitude of 17,000 feet. No falls were recorded on the Lowarai range, and falls were light on the hills of Swat Kohistan. Accumulations were normal at Chitral and measured from fourteen to fifteen feet in depth on the Lowarai range.

(c) *Khyber Agency*.—No falls occurred during the period under report ; but since snowfall during the winter months was greater than usual, considerable snow existed on Adina and Malaka—two high peaks of Safed Koh—and in a lesser quantity on Gurdama and Lakarai peaks.

(d) *Kurram*.—Above 13,000 feet, accumulations of snow were below normal.

(e) *South Waziristan*.—No snow fell in the south Waziristan Agency and adjacent regions, during the period.

V.—KASHMIR.

(a) *Skardu*.—There were no fresh snowfalls during the season. Accumulations existing on the adjacent high mountains and passes were normal.

(b) *Dras*.—Light falls were observed on the neighbouring high mountains on one day in June and in July.

(c) *Srinagar*.—No snow fell in June. Light falls were observed on the surrounding high mountains on two days in July.

(d) *Gulmarg*.—Fresh falls were observed on the surrounding hills on two days in June and three days in July. There was very little accumulation on the Affarwat range at the end of the period.

(e) *Kargil*.—The period was snowless. Accumulations on the well-known passes, measured one inch in depth.

(f) *Sonamarg*.—There was no snowfall during the season and the accumulations at the end of the period were below normal.

(g) *Gurez*.—Fresh falls of snow were observed during the 2nd and 3rd weeks of June. Accumulations exist above an elevation of 13,000 feet.

VI.—PUNJAB.

(a) *Chamba*.—In June, the weather was very unsettled. At elevations above 9,000 feet rain occurred intermittently, accompanied by light snowfall which culminated into regular snow storms on the 13th and 26th and came down to places at elevations of 9,000 feet. After these storms weather cleared up for a couple of days, but became cloudy again and snow intermixed with rain began to fall. The wind rose to a moderate gale accompanied by thunder and lightning. Fresh snow fell at passes nearly 16,000 feet in altitude to a depth of 1 ft. roughly. The accumulation of snow on high hills was about normal. There was no snowfall in July.

(b) *Kangra District*.—In Naggar, snow fell on 4 days in June and 3 days in July. Accumulations were visible only on the highest peaks. A snow fall of about 6 ft. was recorded on the top of Dhauli Dhar in the middle of June.

(c) *Kilba (Simla District)*.—Snowfall occurred on 5 days in June and 8 days in July. The accumulations at the end of each month are given in the following table :—

TABLE.

Pass or Peak.	ACCUMULATIONS AT THE END OF	
	June.	July.
	Ft.	Ft.
Rupan	5	3
Brua	3	1½
Shatul	3	1½
Kailash	13	7

Accumulations of snow, at the end of the period were above normal.

VII.—UNITED PROVINCES.

(a) *Almora*.—The monthly totals of snowfall were as follow :—

TABLE.

Locality.	June.	July.
	Ft.	Ft.
Malla Darma	6	2½
Malla Danpur	½	..

Locality.	June.	July.
	Ft.	Ft.
Biyans	19	..
Malla Johar	4½	5½
Chaudans	4½	2½

The following table gives the accumulations of snow on the principal peaks and passes :—

TABLE.

Pass or Peak.	ACCUMULATIONS AT THE END OF	
	June.	July.
	Ft.	Ft.
Nuwe.	5	2½
Milan	4	1½
Bagduar	2½	1
Binkaru	4	2
Lampia	9	..
Lepulekh	6	..
Kafni	½	..
Kantila	½	..
Puwalidwar	½	..
Nandakote	½	..

The accumulations of snow at the end of the period were slightly below normal.

(b) *Garhwal*.—There was no snowfall on the mountain ranges and passes of the district. Accumulations at the end of the period were 2 to 3 ft. deep.

VIII.—ASSAM.

No falls.

AUGUST AND SEPTEMBER.

I.—PERSIA.

No falls.

II.—AFGHANISTAN.

No falls.

III.—BALUCHISTAN.

No falls.

IV.—NORTH-WEST FRONTIER PROVINCE.

Chitral.—At elevations of 12,000 feet and above, one snowfall of 3" occurred.

V.—KASHMIR.

(a) *Skardu*.—Fresh falls of snow were observed on the surrounding peaks on two days in August and two days in September.

(b) *Dras*.—One light snowfall occurred on the higher peaks in August, and a few light falls in September.

(c) *Srinagar*.—Fresh falls were visible on the surrounding high mountains in both the months.

(d) *Gulmarg*.—Two fresh light falls of snow were witnessed on the Affarwat range in August, and several such in September. The total precipitation, however, was above normal in August and in defect in September.

(e) *Kargil*.—There was no snowfall during the period.

VI.—PUNJAB.

(a) *Kilba (Simla District)*.—Snow fell on five days in August and one day in September. The snow line descended to an altitude of 11,000 feet. The accumulations of snow at the end of each month were below normal, and are entered in the following table :—

Pass or Peak.	August.	September.
	Ft.	Ft.
Kailash	4	3
Brus	$\frac{1}{2}$	$\frac{1}{2}$
Rupan	2	1
Shatal	$\frac{1}{2}$	$\frac{1}{2}$

VII.—UNITED PROVINCES.

(a) *Almora*.—The monthly totals of snowfall were as follow :—

TABLE.

Locality.	August.	September.
	Ft.	Ft.
Biyans	17	14
Malla Darma	8	5
Malla Johar . . . . .	..	14 $\frac{1}{2}$

Accumulations at the end of each month were below normal and are given in the following table :—

TABLE.

Pass or Peak.	August.	September.
	Ft.	Ft.
Nuwe.	8	7
Lampia	3 $\frac{1}{2}$	7
Lepulekh	2	5
Untadhura . . . . .	..	5
Ralam Dhura . . . . .	..	5
Burfu . . . . .	..	5
Milain . . . . .	..	5

VIII.—ASSAM.

No falls.

The retreating monsoon period, October to December.

I.—PERSIA.

Meshed reports 4 days of fall which gave a total precipitation of 4.3" during December. The snow fall of the season was above the average,

II.—BALUCHISTAN.

Quetta.—From the 4th December, snow was observed on the neighbouring mountains at heights above 9,000 feet. By the 11th the snow line had descended to a height of

8,000 feet. Snow and sleet fell at the station on the 16th, while a heavy snowfall which occurred on the 18th gave 0.71" of equivalent rain. By the 20th the average depth of snow on the roads and country around Quetta rose to about 7" and the mountains became thickly covered with snow. Both snowfall and accumulations were above normal.

III.—AFGHANISTAN.

The usual reports were not received.

IV.—NORTH-WEST FRONTIER PROVINCE.

(a) *Hazara*.—Snow fell only in December. The following table gives the character of snowfall during the month.

TABLE.

Locality.	Number of days of snowfall.	Total amount.		Accumulations at the end of December.	
		Ft.	in.	Ft.	in.
Inner hills—					
Narang . . .	14	13	1	10	6
Paludran . . .	14	10	8	8	4
Kagan . . .	11	6	5	3	0
Jared . . .	8	2	11	0	9
Sundigali . . .	11	9	4	9	4
Jacha . . .	11	8	8	8	8
Outer hills—					
Thandiani . . .	13	3	4	3	9
Dugagali . . .	8	2	4	4	6
Birangali . . .	10	4	0	2	0

Snowfall was above normal and occurred earlier than usual.

(b) *Khyber Agency*.—There was no snowfall in November while about $\frac{1}{2}$ " fell in December. Accumulations of snow on the higher peaks were from 2 to 4 ft. in depth.

(c) *Drosh*.—There were seven falls in December up to the 19th which gave about 9" of snow. In Chitral a snowfall of 6" was recorded on the 10th October and another of 3" on the 15th. In November there were three days of snowfall.

(d) *Kurram*.—Up to the 20th October, snowfall on the well-known peaks of Koh-i-Sufed was light and melted rapidly. On the 23rd, 30th and 31st it snowed heavily. There was, however, only one snowfall in November, on the

13th. In December heavy snowfall occurred on 5 days. The height of the snowline at the end of the month was 7,000 feet above sea level. The depth of accumulations on Sikaram and Badinasar was about 5 ft.

(e) *Kohat*.—In November, there was no snowfall at Fort Lockhart while in December 1' 3" of snow fell.

(f) *North Waziristan*.—No snow fell in November. In December 10 $\frac{1}{2}$ " of snow fell in Razmak, 2" in Lowarai, 3 $\frac{1}{2}$ " at Datta Khel, 11 $\frac{1}{2}$ " in Shoidar and 9" in Mazdak.

(g) *South Waziristan*.—Snow fell everywhere on heights above 3,500 feet, 4" at Sarwakai and 8" at Razmak. Highest hills such as Preghal and Jundi Ghar were well covered.

V.—KASHMIR.

(a) *Skardu*.—Fresh snowfall was observed on the surrounding mountains on 3 days in October and 4 days in November. Snowfall in the Tahsil proper, was experienced only on the 29th November. 0.54" of snow was recorded at the station during December, the total of five days of snowfall.

(b) *Dras*.—Several heavy snowfalls were observed on the well-known peaks and passes in October. In November there were a few falls while in December several falls were reported. At the end of the period there was a depth of 2 $\frac{1}{2}$ ft. of snow on the ground at the station.

(c) *Srinagar*.—Several fresh falls of snow were observed on the surrounding mountain ranges both in October and November. At the station, the first snowfall for the season occurred on the 19th December and was followed by several others.

(d) *Kargil*.—In October there was no snowfall. On the 30th November there was a fall for a few hours. December witnessed 10 falls with a total precipitation of 1.79" when measured as water. The accumulations of snow at the end of the period, on the neighbouring peaks, were about 3 $\frac{1}{2}$ ft. in depth.

(e) *Leh*.—Snowfall was normal both in October and November. December brought exceptionally heavy snow.

VI.—PUNJAB.

(a) *Rawalpindi*.—There was no snowfall in November while in December there were five falls. At Kahuta there was only a single fall of snow in December. The accumulations on the three peaks Bathian, Sunnybank, and Jica Gali were about 2 ft. deep. The falls and accumulations were less than normal.

(b) *Chamba*.—No falls were reported in November. Inclement weather continued throughout December resulting now and then in rain intermixed with hail storms at lower and in snow at higher elevations. Snowfall on the 19th was unusually heavy and extended down to an elevation of 3,000 feet. Weather remained unusually cold throughout the month.

(c) *Kulu (Kangra District)*.—There was no snowfall in November. Three falls occurred in December, the snowline descending to an elevation of 5,000 feet. The accumula-

tions at the end of December are set out in the following table :—

TABLE.

Locality.	Depth.	Locality.	Depth.
	Ft.		Ft.
Kulu Tahsil—		Saraj Tahsil—	
Rohtang	20	Siri Khand	9
Hampta	21	Chul	4
Barsai	4	Maghin	3
Pujadhar	6	Dundku	2
Chandarkhani	4	Tikar	2
Lohri Achhri	4	Ramgarh	1
Sari	6	Nohnun	2
Bhabu	3½	Raghopur	½
Tarapur	3½	Jalori	3
Mojhang	2	Sakiran	3
		Shupakun	1
		Bashleo	2
		Palach	3
		Tirath	5
		Lajchri	4
		Gargawan	2

Both the actual falls and accumulations at the end of the period were above normal.

(d) *Kilba (Simla District)*—There was an unusual amount of early snow in October, falls occurring at heights above 9,000 feet during the first week of the month. The higher passes Bhabeh, Narisang and Rupan were all closed before the end of October. Only two falls of snow were recorded in November while there were twelve in December, several of which occurred at elevations of 6,000 feet. Snowfall was in excess in October and December and in defect in November.

The accumulations at the end of each month are given in the table below :—

TABLE.

Pass or Peak.	October.	November.	December.
	Ft.	Ft.	Ft.
Rupan	2½	3	10
Brus	1½	2	8
Shatul	1½	1½	8
Kailash	4½	5	15

Accumulations at the end of the period were above normal.

VII.—UNITED PROVINCES.

Almora.—Fresh falls of snow during the three months are given below :—

TABLE.

Locality.	October.	November.	December. (1st to 20th).
	Ft.	Ft.	Ft.
Malla Darma	6	1½	..
Biyana	26	4	51½
Malla Johar	28	..	..
Malla Danpur . . . .	..	1½	7½

The accumulations of snow at the end of each month are given in the following table :—

TABLE.

Pass or Peak.	October.	November.	December. Up to 20th.
	Ft.	Ft.	Ft.
Lampia	19	7½	59
Lipulekh	14	4	46
Pindari . . . .	..	..	7½
Kafni . . . .	..	..	7½
Kantila . . . .	..	..	7½
Pualidwar . . . .	..	..	7½
Nandakote . . . .	..	1½	7½
Nuwe	9	6	..
Untadhara	8	..	..
Ralam Dhura	8	..	..
Burfa	8	..	..

The accumulations up to the 20th December were very much above normal.

VIII.—ASSAM.

(a) *Kamrup*.—The following table gives the accumulations of snow on well-known passes of the district.

TABLE.

Locality.	November.		December.	
	Ft.	In.	Ft.	In.
Gampa	2	0	2	6
Chirkimila	1	0	2	0
Angla	4	0	6	0
Sungkhar	0	4	0	6
Pangkhar	0	3	0	3
Kepegangri.	4	6	5	2
Tupkang	0	3	0	3
Oang Chengla	0	3	0	3
Chakteng	3	0	4	0
Tawang	0	3	0	3

Locality.	November.		December.	
	Ft.	In.	Ft.	In.
Karila	0	6	1	0
Thungasangla	3	0	3	6
Bomtang	3	0	3	6
Serkemla	0	6	0	10

Both the falls and accumulations were normal.

(b) *Sadiya Frontier Tract*.—Very heavy falls of snow occurred on all the hills during November and December. Snow generally lay far lower than usual, the passes were blocked and several deaths from exposure were reported. The general climatic conditions were far more severe than usual and the snowfall was very much above normal.

(c) *Baliapara Frontier Tract*.—The weather was severe from the middle of November to the end of December. Two bad storms occurred at the end of November and in Christmas week. The Se-la route was completely closed owing to the depth of snow for days at a time, and the snow line descended to a height of 6,000 feet. The accumulations of snow were above normal.

Summary.

The cold weather period, January and February.—The winter snowfall at Meshed was less than normal. In Baluchistan snowfall was in defect in January and in excess in February while in the N. W. Frontier Province, falls were nearly normal. At Srinagar the total precipitation for the period was in defect while it was normal or in excess elsewhere in Kashmir. Punjab had large excesses except in the Kulu and Saraj Tahsils where snowfall was below normal. Normal falls were recorded in the United Provinces. Falls on the Kamrup hills in Assam were below normal, normal in the Baliapara Frontier Tract, and in excess in the Sadiya Frontier Tract.

The hot weather period, March to May.—There were no fresh falls of snow in Baluchistan. In the North-West Frontier Province no falls were experienced except at Drosh for two days in March. Snow accumulations in the Province were normal or in defect. Kashmir experienced normal snowfall during the season. Accumulations at the end of the period were normal or in defect except on the high peaks near Dras and Sonamarg. In the Punjab snow accumulations at the end of May were normal except on the Kilba range where they were in excess. Defective accumulations were observed on the peaks in the United Provinces. Hills in Assam had an excess of snow accumulations at the end of the period.

The southwest monsoon period, June and July.—Falls on the western Himalayas were confined to heights above 13,000

ft. in the Kagan valley and above 17,000 ft. on the Hindu Khush. Accumulations on the western hills were nearly normal. Kashmir and the United Provinces had normal or defective accumulations of snow, while the Punjab hills had excesses.

August and September.—Light falls of snow occurred at higher elevations in the North-West Frontier Province and Kashmir. Accumulations of snow on the hills of the Punjab and the United Provinces at the end of the season, were below normal.

The retreating monsoon period, October to December.—In Persia and Baluchistan snowfall commenced in December and was very heavy. The snowfall of November in the North-West Frontier Province was light, while December gave an excess, and caused heavy accumulations. Kashmir and the hills of the Punjab experienced normal falls in October, defective falls in November and excesses in December. Accumulations of snow at the end of the period were above normal in the United Provinces and the Punjab hills. Assam recorded heavy falls during the season and excessive accumulations at the end of the period. Kamrup district was however free from these excesses and has reported only normal snowfall.

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